

How ERS-FED uses the CE Diary

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Food Spending in American households

- Tabulations of CE Diary data 1980 thru 2004
 - Several publications over the years with the latest by Blisard and Stewart, EIB-23, 2007
 - Food spending by a variety of CU (household) characteristics
 - Special reports that are variations on a theme: low-income, cohorts, food away from home (fast-food and full-service)
- Issue: 2-weeks of reported expenditures
 - treated as separate CUs, or
 - averaged into one week of expenditures by that CU

Household size and food expenditures: Economies of Scale

- Kerr and Peterkin (1975) used 1965 Nationwide Household Food Consumption Survey to find that larger households spend more on food but less per person
- Results from the 1975 study used to set SNAP benefits by household size relative to 4-person household (TFP)
- Blisard and Stewart (2007) used tabulations of 2003-4 CE diary data

Compare food expenditure for 1-person household by income with FSP maximum benefit, 2005-2006

Table. Estimates of Economies of scale on cost of food at home by household size

	Economies of scale	Economies of scale
	Kerr & Peterkin (1975)	Blisard & Stewart (2007)
hh-1	1.20	1.36
hh-2	1.10	1.37
hh-3	1.05	1.09
hh-4	1.00	1.00
hh-5	0.95	0.92
hh-6	0.95	0.71
hh-7+	0.90	0.71

Source: ERS calculations from BLS, Consumer Expenditure Survey.

Compare food expenditure by 4-person household and income with FSP maximum benefit, 2005-2006

	All	Less than \$10,000	\$10,000 to \$15,000	\$15,000 to \$20,000	\$20,000 to \$30,000	\$30,000 to \$40,000	\$40,000 to \$50,000	\$50,000 to \$70,000	\$70,000 and more
Food at home	8,583	5,803	5,305	4,887	6,212	6,278	6,242	8,209	10,601
FSP max ben family of 4	6,030								
FSP gross income family of 4	24,840								

Source: ERS calculations from BLS, Consumer Expenditure Survey.

Compare food expenditure for 1-person household by income with FSP maximum benefit, 2005-2006

	All	less than \$5,000	\$5,000 to \$10,000	\$10,000 to \$15,000	\$15,000 to \$20,000	\$20,000 to \$30,000	\$30,000 to \$40,000	\$40,000 to \$50,000	\$50,000 to \$70,000	\$70,000 and more
Food at home	3,162	2,447	2,012	2,275	2,592	2,775	3,342	3,769	4,666	5,561
FSP max ben family of 1	1,806									
FSP gross income family 1	12,276									

Source: ERS calculations from BLS, Consumer Expenditure Survey.

CE food budget relative to cost of TFP

	Ratio of total food exp. to TFP cost	Percent with ratio less than 1
All Households	1.61	4.5
All Low-Income Households	1.25	20.2
Low-income female headed households with children	1.14	29.1
Low-income married couples with children	1.05	61.9
Low-income elderly couples	1.29	8.2

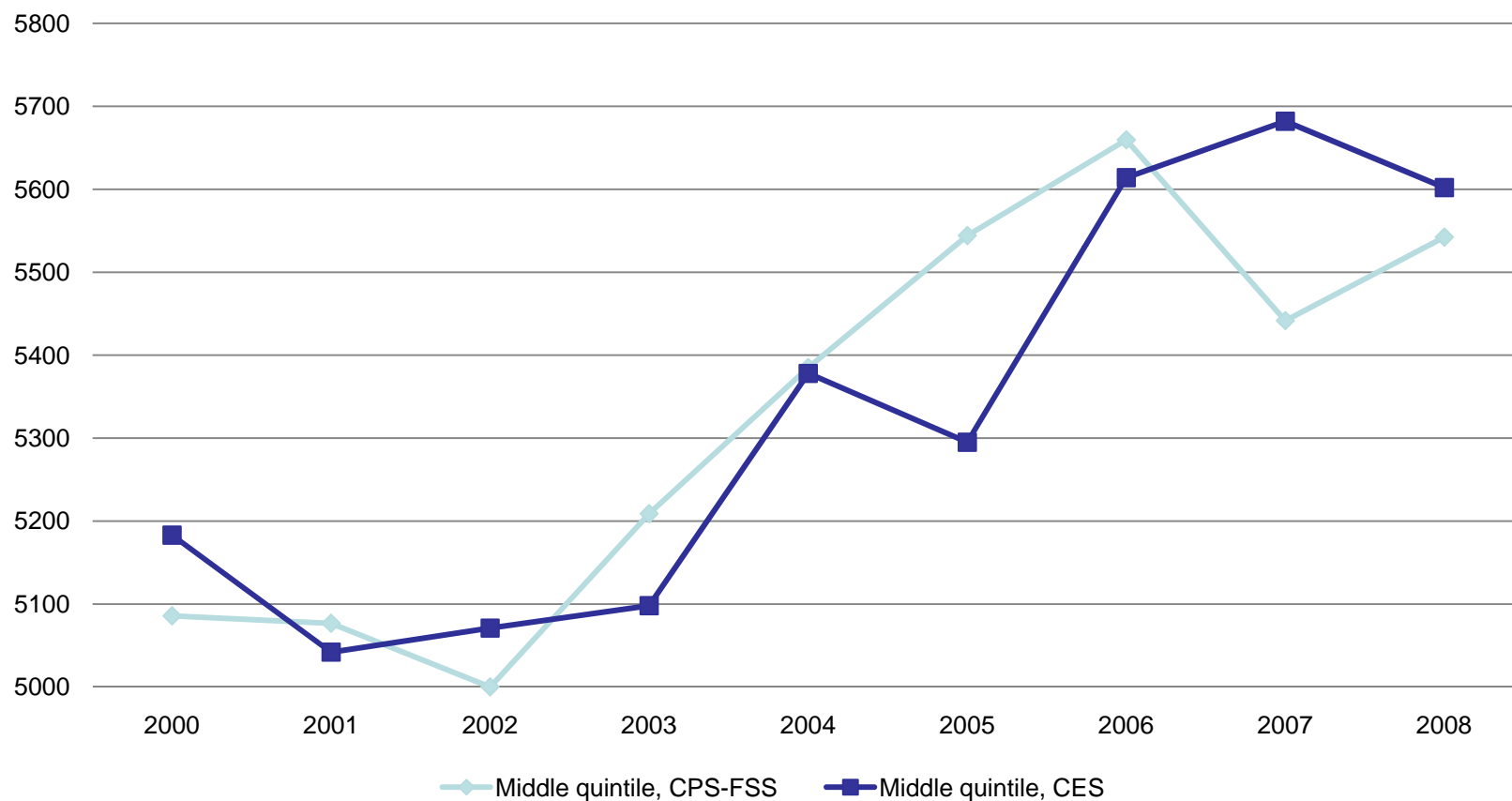
Source: Blisard and Stewart (ERR-20, august 2006)

Average weighted annual household food expenditures in Nielsen homescan and CE, 2002-05

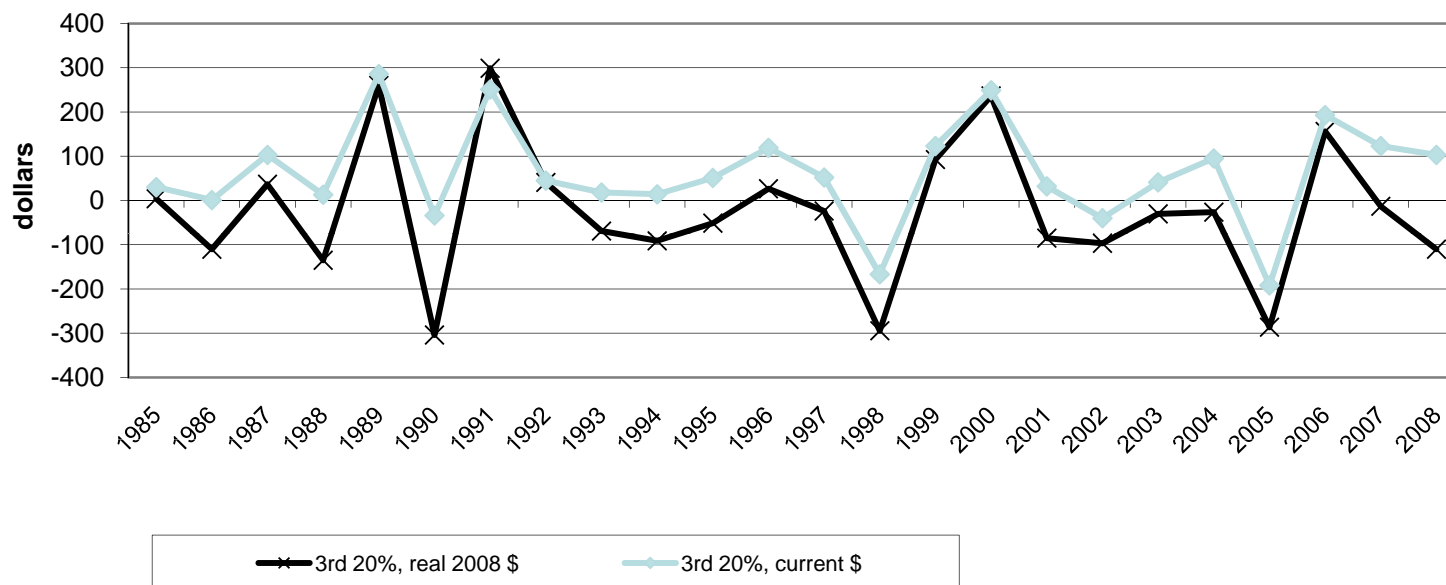
Leibtag, Rev. Ag. Econ Fall 2009

	Homescan	CE	Difference
	Mean	Mean	HS - CE
Meats and fish	\$421	\$790	-\$369
Eggs	\$19	\$37	-\$18
Fresh Milk	\$101	\$140	-\$39
Other Dairy Products	\$221	\$221	\$0
Fresh Fruits and Veges	\$186	\$363	-\$177
Fats and Oils	\$47	\$87	-\$40
Nonalcohol Beverages	\$198	\$286	-\$87
Cereal & Bakery Products	\$374	\$460	-\$85
Sugar and Sweets	\$116	\$125	-\$8
Processed Fruits & Veges	\$198	\$199	\$0
Misc Foods	\$535	\$537	-\$1

CPS food security supplement compare to BLS CE-diary: mean annual expenditures for food by households in middle quintile of household income. Nord, EIB-61 2009



year to year change in average annual food at home consumption, current dollars and real 2008 dollars (CPI food-at-home deflator)



Econometric Estimates of demand functions

- Demand system for households
 - LES segmented by CU structure and income (2000)
 - Engel model of demand (income elasticity) for 8 major food items by low- and mid-income households (Stewart and Blisard, ERR-54, 2008)
- Price and income elasticity
- Marginal versus average budget shares

BLS, CE average food expenditure shares

	Total expenditure		Income after tax	
	all-cons	low-20%	all-cons	low-20%
1984	15.0	16.1	15.9	56.0
1996	13.8	16.8	14.1	41.9
2002	13.2	16.7	12.0	38.3
2006	12.6	15.6	10.5	32.0

Source: ERS calculations from BLS, Consumer Expenditure Survey.

BLS, CE marginal food expenditure shares, 2006

	\$5,000 to \$10,000	\$10,000 to \$15,000	\$15,000 to \$20,000	\$20,000 to \$30,000	\$30,000 to \$40,000	\$40,000 to \$50,000	\$50,000 to \$70,000	\$70,000 and more
ch food to ch inc before tax	-2.50	5.26	10.83	6.78	5.65	6.45	7.97	4.22
ch food to ch inc after tax	-2.45	5.18	11.13	6.89	6.03	6.64	8.46	4.53
ch food to ch avg exp	4.78	6.19	13.96	10.93	9.12	14.36	11.09	8.71

Source: ERS calculations from BLS, Consumer Expenditure Survey.

USDA National Household Food Acquisition and Purchase Survey (FOODAPS)

- Food purchased for consumption at home and away from home, and
- Foods acquired through food and nutrition assistance programs
- Quantity, Prices and Expenditures are included as well as nutritional value of foods
- Sample: 3,500 low-income and 1,500 high-income households
- Five year horizon

CE food expenditures: issues and questions

- Expenditures = Price * quantity
 - Could price data be included as a CE data file
- Low-income CUs spend more than income
 - Borrowing & credit-card debt, inter-household transfer (alimony)
 - Treatment of students and negative proprietor income
- Linking the diary with the interview survey
 - Interview food expenditures are greater
- Under-reporting of SNAP recipients & benefit

CE food expenditures: issues and questions

- Food at home commodity detail
 - White bread and bread other than white
 - Whole grains, for bread, rice, pasta, etc.
 - Potatoes, lettuce, tomatoes, and other fresh vegetables
 - More detail, e.g. dark-greens, deep-yellow
- Food away from home: more detail
 - What more can we get, e.g. types of foods?
 - School lunch: vending machines/full-service/catered affairs
- Report median expenditures
- Apply standard errors (e.g. anthology article)